

FUNCTIONAL AND STRUCTURAL CERVICAL SPINE DYSFUNCTIONS WITH TEMPOROMANDIBULAR DISORDERS

Ângela Viegas Andrade and Luci Fuscaldi Teixeira-Salmela

Department of Physical Therapy, Federal University of Minas Gerais, Brazil; email: aviegas.bhe@terra.com.br

INTRODUCTION

The incidence of temporomandibular disorder (TMD) has increased and has become a concern for various health professionals [1,2]. The relationship between TMD and cervical spine structural disorders has only been modestly demonstrated [2,3]. The objective of this study was to investigate functional and structural alterations of the head and neck with 17 TMD and 17 age and gender-matched asymptomatic individuals, using a cross-sectional design

METHODS

Functional measures included scores on the temporomandibular index (TMI)¹ and of pain palpation of the superior trapezius, sternocleidomastoideus, and suboccipital muscles assessed by scores on the visual analog scale. Structural assessment of the cervical spine included radiographic measures of lordosis [2], determined by the methods of Cobb and Harrison, as well as the position of the hyoid bone [3]. All radiographic images were digitized using the Autocad software.

Descriptive statistics and tests for normality were carried out for all variables. Student *t*-tests for independent samples with Bonferroni correction were used to investigate differences between groups for all variables, with a significance level of $\alpha < 0.02$. Pearson correlation coefficients were calculated to investigate the relations between cervical alignment measures.

RESULTS AND DISCUSSION

Seventeen subjects (16 female and one male) with a mean age of 23.5 ± 3.6 years comprised the TMD group.

As illustrated in Figure 1, individuals with TMD, when compared with asymptomatic subjects, presented higher scores in total TMI and its indexes ($t=11.09$; $p<0.0001$), with the muscular index showing the greatest differences. They also demonstrated higher levels of perception of pain for all cervical muscles ($p<0.0001$).

Even though no significant differences between groups were found, as shown in Table 1, the TMD subjects presented less cervical lordosis when compared with the reference values of 17° and 26° for the Cobb and Harrison methods [3]. These findings suggest an association between TMD and alterations of alignment of the cervical column, indicating

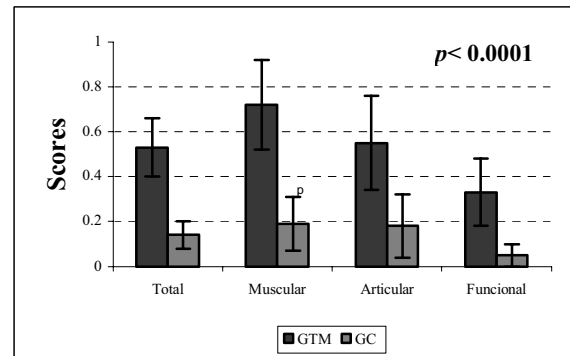


Figure 1: Means (\pm SD) of the ITM and its indexes

that the cervical column should be evaluated in the presence of TMD.

The position of the hyoid in relation to the cervical column was stable, indicating that its position was not influenced by TMD. In that the Cobb and Harrison measures revealed a strong correlation ($r=0.82$; $p<0.0001$), it is suggested that either measure can be used to evaluate cervical spine alignment

CONCLUSIONS

The present findings demonstrated that subjects with TMJ demonstrated functional cervical dysfunctions and decreased cervical lordosis, suggesting that cervical assessment should always be performed in the presence of TMJ. Either method, Cobb or Harrison's, may be used to assess cervical spinal alignment.

REFERENCES

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Table 1: Means (\pm SD) of the Structural Measures for both Groups

Variable		DTM (n=17)	Control (n=17)
Cervical lordosis (deg)	Cobb	9.08 ± 8.05	7.63 ± 10.96
	Harrison	17.40 ± 8.66	16.73 ± 9.73
Hyoid bone position (cm)	Horizontal	3.09 ± 0.28	3.04 ± 0.31
	Vertical	-0.40 ± 0.53	-0.37 ± 0.42